Neurological Digest.

CURRENT ANATOMY, PHYSIOLOGY AND PATHOLOGICAL ANATOMY OF THE NERVOUS SYSTEM.

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HYSTERICAL FEVER.

The multiform manifestations of hysteria is one of its most salient characteristics. Many of its prominent symptoms, such as the polyuria after the attack, the muscular twitchings, the vaso-motor phenomena, etc., are readily explainable, but it is not so with the hyperpyrexia which attends some cases of simple as well as profound hysteria and hystero-epilepsy; here an explanation must be largely problematical so long as our knowledge of the pathology of hysteria is so unsettled as it is to-day. Among the recent writers who have treated the subject of hysterical fever clinically and theoretically must be mentioned Dr. Arthur Sarbo, who has gone into it at some length, and has published his ideas in the XXIIId volume of the "Archiv. für Psychiatrie." In this paper we are given the theories of many workers from the time when the French authors, such as Pomme, Tissot, and others first spoke of this condition and its supposed origin, and to Briquet's classification as presenting itself under three forms: (1) symptoms of fever, of which the rapid pulse was the characteristic; (2) rapid pulse and subjective feelings of warmth, and (3) a condition where with ordinary symptoms there was added headache, great thirst, anorexia, vomiting, etc. It was the opinion of Briquet probably as also was it of Laudouzy that the febrile symptoms were the result of the muscular cramps, while Chomel, on the other hand, considered the fever dyspeptic in origin. But it is hardly necessary to go into the classification or various ideas that were put forth for the purpose of explanation by the older French writers. It suffices to know that such a condition as hysterical fever exists and is frequently observed, and then to draw such conclusions as are possible in concordance with our present knowledge of neuritic physiology. In the paper referred to by Sarbo his argument for the occurrence of the fever is summed up in the three following paragraphs:

1. Clinical observation has for long instructed us that in the causation of fever the nervous system plays an important rôle, and experimental investigation has shown that this influence of the nervous system is controlled by two centres, the vaso-motor and the thermic centres.

2. Any fever for which no organic disturbance can be found, which implies that the influence producing it has acted through the nervous system, we consider to be the result of a disturbance of the function of the thermogenic centre and call such a result functional nervous fever.

3. It is *a priori* probable that in hysteria which is an exquisite functional neurosis such a condition of fever can present itself.

In order first to understand the production of neurotic fevers we must thoroughly understand the production of fever in pathological conditions. One of the prime conditions necessary for any organ to functionate physiologically is a proper degree of temperature. The production of heat is the result of oxidation of certain substances in the blood and tissues rich in carbon and poor in oxygen. As this process goes on with greater or lesser vigor so will be the production of animal heat, and any condition which stimulates this oxidation, whether it be taking an excess of food rich in carbon or *vice versa*, excess of oxygen, providing always that the opposite element be present in sufficient quantity to satisfy the other element in excess, will result in the production of an extra amount of heat which may really be termed physiological. But when a condition of rise of temperature results from excessive oxidation of the components of the blood and other tissues which are ordinarily concerned in satisfying the proper equilibrium of the body, this state must be termed pathological. The most potent argument in favor of excessive oxidation is to be found in the fact that the exhalations and excretions indicative of oxidations are found to be greatly increased, such for instance as the carbon dioxide and the urea. The stimulus in causing such an increased oxidation can be divided into the organic irritants embracing our now well-formulated germ theory, and the inorganic, such as the mechanical, chemical, electrical, etc., and to satisfy the condition which we are now describing a third condition or psychical must be mentioned. In considering how these irritants act to produce excessive oxidation it was but natural that investigators should both from analogy and theory suspect the presence of a thermogenic centre, whose equilibrium having been disturbed by the pyrogenic substance, a febrile state would follow. Such a centre has been described by various investigators. H. Fischer located it in the cervical segment of the cord; Ripping found in the posterior part of the gyrus fornicatus such a centre. Tscheschichin observed an elevation of temperature when the pons was severed from the medulla, and he was of the opinion that the cerebrum was possessed of modifying heat centres. Baginsky and Lehman observed high temperature following irritation of the corpus striatum. H. C. Wood, in a brochure on "Fever," published in 1880, reaches the conclusion that there is a special heat centre either in or above the pons, probably in the first cerebral convolution posterior to the sulcus cruciatus and this centre he regards as inhibitory in its action, in so much as irritation of it resulted in a diminution of heat production, and he also puts forth the theory that this centre is incited to activity by an elevation of the temperature of the body. Most observers are of the opinion however that the thermogenic centre is situated in proximity to the vaso-motor in the lower portion of the floor of the fourth ventricle, near the apex of the calamus scriptorius, and this is the view promulgated by most teachers of physiology to-day. That such a centre exists here very few will doubt, but it is probably also the opinion of recent observers who have been following in the wake of experimental physiology that such a centre is subsidiary, and greatly so to cerebral, not centres but areas. Dr. W. Hale White has recently made important contributions to this subject, as has also Dr I. Ott, some of whose experiments have been published in this JOURNAL. The former investigator has proven that lesions of the corpus striatum, septum lucidum, crus cerebri, and posterior part of the upper surface of the cerebral cortex cause a rise of temperature. This view of thermal areas need not at all conflict with the presence of a centre in the medulla whose function is to preside over the regulation of heat in its expenditure and income, and not only bears a very close anatomical relation to the vaso-motor centres but a physiological one.

What little is known about the pathology of hysteria can be no better given than is written by Gowers, where he says it not only consists in, but arises by a functional disturbance, a loss of due balance between certain of the higher functions of the brain. But many, probably most, of the definite groups of symptoms depend on the secondary derangements of the lower centres. Reasoning on an analogous plan we might conceive of higher heat areas, such as those described by White, Ott, Wood, and others, which on suffering some molecular change or a disturbance in the nutrition of the finer nerve elements might so react on this secondary control centre situated in the medulla as to cause an increased production of heat.

In our ordinary text-books the subject of fever in hysteria is dismissed with the statement that an elevation of temperature is rarely if ever present, but that the registering thermometer is such a conclusive instrument to excite the wonder and sympathy of physicians and friends, that it is often clandestinely manipulated in order to register some enormous degree of heat, but the fact still remains, on the authority of trustworthy and careful observers that an elevation of temperature does take place in some cases, not the incredible increases of 120 to 160° F. which are spasmodically reported to cause horipilation in the credulous, but a moderate elevation.

Dr. Sarbo first relates a specimen case of hysteria which represents the condition of so-called pseudo-hysterical fever of the French, or apparent hysterical fever of the Germans, or hysterical tachycardia, and considering these cases he draws the following conclusions:

1. Hysteria as a vaso-motor neurosis can present a symptom complex which if but tachycardia is added thereto will give the appearance of a hysterical condition; in which, nevertheless, no elevation of temperature is found, and this condition we may term pseudo-hysterical fever, but he cannot agree with Pinard in including those cases whose temperature reached 38° to 38.5° C., as Pinard considered this elevation within physiological bounds.

2. Hysterical tachycardia is a condition to be rather frequently observed.

3. This pseudo-hysterical fever occurs as well with simple hysteria as with hystero-epilepsy.

In his second group Sarbo places his cases of actual hysterical fever, and without going into the details of these cases it may be interesting to cite the following conclusions:

1. In the course of hysteria we may have a continued fever which has no organic disease for its foundation, and which is not at all dependent on muscular contraction, as in cramps, and to these cases and to these alone are we justified in giving the name continuous hysterical fever.

2. Continuous hysterical fever may be of the mildest form, or it may be very intense. In a schematic way we might divide continued hysterical fever into two groups. The first, including those cases of mild fever where the temperature reaches 38.5° C., and the second, those having

a temperature registering from 38.5° C. and upwards. The continuance of this fever is between days and months.

3. The fever need not be typhoid in character; often it comes on suddenly and disappears with equal abruptness.

4. Anomalies occur as in the difference in the temperature in the two halves of the body, then again there occurs a high morning temperature, and often a low evening temperature.

5. Often severe symptoms do not have a high elevation of temperature, and *vice versa;* a case with high elevation of temperature need not necessarily be accompanied by severe symptoms.

6. This fever may so engraft itself on a symptom complex as to present a picture of typhoid, tubercular meningitis, phthisis, or peritonitis.

7. As an apparent cause of the fever there may be in one case the sudden appearance of the menstrual flow, psychical shock, traumatism, etc., but in most cases there is no attributable cause.

8. In a single case there followed after an attack of hysteria, independent of the hysteria, a stage of fever, but the appearance of this cannot be taken as a differential diagnostic mark between epilepsy and hystero-epilepsy.

9. This form of hysterical fever has as yet been most often observed in cases of hystero-epilepsy.

Concerning the ætiology of hysterical fever Dr. Sarbo does not agree in all particulars with Chauveau, who was the first to consider the ætiology of this symptom. His opinion was that it might occur primarily without any conceivable referable causes, or secondary, as a reaction of the nervous system from slight organic change. But Sarbo considers that all cases with fever dependent on organic change, be they ever so small and insignificant, should be excluded from being classified as hysterical, as he considers as the one great characteristic of hysterical fever, that it arises not from organic change, even the slightest nutritional disturbance, but from disturbance of functional equilibrium. With this view of Sarbo's it does not seem possible to entirely accord.

It is probably the conception of pathologists that all now so-called functional diseases will some day, under the searching influence of superior methods of investigation and observation, be shown to have a really determinable and demonstrable lesion, and if this prophecy be fulfilled the elevation of temperature will be shown to depend on the nutrition or molecular changes, or both, which we conceive of now on theoretical grounds.

The relation borne to the development of hysterical fever by trauma, menstruation, psychical influence, etc., are of very little importance, except in their influence in starting the manifestation of the functional neurosis; they act merely by destroying the poise of higher nerve equilibrium, but their force would be inert if an inherent predisposition to be impact was not present.

Although Dr. Sarbo enters into the discussion of the diagnosis and prognosis of hysterical fever it does not seem laudable nor desirable to elevate a single symptom to the dignity of being treated as a disease. It is no more possible to make the diagnosis of hysterical fever by the consideration of that symptom alone than it is to make a diagnosis of hysterical urine from the consideration of the urine alone. Hysteria will continue as it has always done, to simulate a multitude of dissimilar diseases, and the presence of fever will but make its diagnosis somewhat more severe, especially when it has to be differential from febrile diseases. This diagnosis will probably be reached most safely and satisfactorily by considering the temperament and somatic conditions of the patient and by a process of exclusion. The same remarks might apply to the prognosis. It deserves no separate consideration. The prognosis of hysterical fever is simply overawed by the protean form of hysteria itself. Dr. Sarbo, in the conclusion of his really interesting paper, gives the three following general conclusions:

1. Such a condition as hysterical fever really exists, and it can be classified under two forms: a continued and interrupted form presenting itself abruptly.
2. Hysterical fever we must consider as a functional fever. We therefore consider the fever as a homologue of other hysterical manifestations.
3. This condition occurs as well in simple hysteria as in hystero-epilepsy, and with these conclusions there will probably be very little confliction, except perhaps in the first half of the second paragraph, as already some workers have disclaimed their belief in its being entirely functional, as that term is generally understood.